Department of Earth Sciences
Strategic Plan Update
2008

MISSION STATEMENT

The mission of the Department of Earth Sciences at University of New Hampshire is to improve our understanding of the Earth, and the processes that affect it, through excellence in teaching, research, and service.

BACKGROUND

The Earth sciences are highly relevant to society in the 21st century. Increases in world population and industrialization amplify the demand for Earth's resources and significantly stress the natural environment. The ability of society to responsibly and prudently utilize the Earth's resources requires a new generation of Earth scientists, an improved understanding of Earth processes, and a population that is educated in the basic concepts of Earth and environmental sciences.

The Department of Earth Sciences at UNH provides high-quality undergraduate and graduate education, research, and service in fields directly related to understanding Earth processes. The fields of study address issues of the state, region, country, and planet. These fields include geology, oceanography, hydrology, atmospheric chemistry, and environmental change (Figure 1). The Department oversees four undergraduate degree tracks, five graduate degree tracks, as well as a professional certificate program and an undergraduate minor. Department faculty also contribute significantly to interdisciplinary programs such as the Ph.D. in Natural Resources and Earth System Science (NRESS); the B.S. in Environmental Sciences; the Marine Program; the Institute for the Study of Earth, Oceans, and Space (EOS); the Center for Coastal and Ocean Mapping (CCOM); and the NASA-UNH Joint Center for Earth Sciences.

The Department's mission and activities contribute directly to the University's Land Grant, Sea Grant, and Space Grant charters through teaching, research, and service by encompassing land and fresh-water resources and environments, marine resources and environments, and the use of space-based observation platforms to gather geoscience information on local, regional, national, and global scales.

In recent years, the Department has experienced significant faculty turnover due to retirements, departures, and new hires. This process of turnover will likely continue for the next few years given several imminent retirements and departures. In addition, the Department is in the midst of a major building renovation that will temporarily uproot many of the academic and research activities. The Department needs a cohesive academic plan in place to guide us as we navigate these and other challenges to make sure we emerge a stronger more unified program.

This document represents an update to the 2005-2010 Strategic Plan that incorporates the results of the Strategic Plan Assessment that was carried out during the Fall of 2007. Our current planning effort is cognizant of the very active planning activities in CEPS, COLSA, EOS and the Marine Program; the external reviews of the Department's undergraduate (completed 2005) and graduate programs

(completed 2008); the recent updating of the RCM Model; the KEEP-NH initiative; and the upcoming University Capital Campaign.

GUIDING PRINCIPLES

The Earth Sciences Department continues to be guided by the following principles that form the foundation of the current strategic plan:

- Through research and teaching, the department will provide high-quality education to our undergraduate and graduate students that prepares them for further educational opportunities and/or careers in the profession.

- The department will maintain research strengths in the areas of geology, hydrology, oceanography, atmospheric science, and environmental change that are well aligned with the University's land grant, sea grant, and space grant charters and national priorities.

- The department will foster an atmosphere that engages faculty, staff, and students in constructive dialogue in accordance with the University's goal to combine the "living and learning environment of a small New England liberal arts college with the breadth, spirit of discovery, and civic commitment of a land-grant research institution."

STRENGTHS

- The UNH Earth Sciences Department is unique, nationally. We have not found another academic department, of comparable size, that covers the same breadth of the Earth sciences as UNH. We attribute this unique quality to the large number of UNH faculty, not all of whom have department affiliation, that contribute to the areas of Earth, ocean, and environmental science. We also recognize the opportunities provided by the vigorous research centers, some of which include our faculty (CCOM, CSRC, OPAL, and CCRC) and others do not (e.g. ERG).

- The active research programs, the innovative interdisciplinary academic programs, and our geographic location place the Department in an excellent position to make significant contributions to the vision articulated in the UNH Strategic Plan.

- Recent hires have positioned us to continue capitalizing on the breadth of available Earth science resources at UNH.

- When complete, the current renovations to James Hall will create a state-of-the-art facility that should help attract students and faculty to the department and position us to better deliver our core teaching and research programs.

CHALLENGES

- The growing complexity of the Department and its associated research centers and academic programs results in significant administrative and communication challenges. These were a major component of both the undergraduate and graduate external reviews.

- As we move into swing space for the next 1.5 years during the James Hall renovation, the Department will become even more scattered than it has been which will make the administrative and communication challenges even more acute. This temporary

fragmentation will also present challenges for student recruitment, near-term curricular reform, and student access to appropriate resources.

- The Department has become increasingly reliant upon course offerings in the centers (CCOM, EOS) and other departments (e.g. CiE, NR, ZOOL). While these efficiencies allow us to do more without new resources, they do not obviate the need to fill faculty positions as they are vacated through resignations and retirements. We continue to explore ways in which we can strategically address the voids created by recent retirements (e.g. Dingman) and departures (e.g. Griffin).

- Over the last five years, several new Group 3 Gen Ed courses (e.g. Making Babies and Germs) have reduced the demand for the lab-based science courses that have traditionally been the mainstay of our General Education offerings (ESci 401, 402, 409, 501). While we have begun to develop new courses (e.g. ESCI 420 Our Solar System) that are more accessible for students, it will remain a challenge to maintain enrollments as the new Discovery Program is implemented unless the General Education Physical Science requirement is strengthened.

- The breadth of the department has created a relatively large number of undergraduate degrees, all of which have significant capacity for enrollment growth. However, few incoming students encounter Earth sciences in High School and thus are not aware of the many opportunities that exist in this field.

GOALS

Improve Departmental Communication

- Implement recommendations of external graduate review including annual department planning events and increasing informal social interactions among faculty and students.

- Increase use of Blackboard and Department web site to insure proper flow of information

- Encourage attendance at Faculty Meetings and continue distribution of meeting summaries.

Increase Undergraduate and Graduate Enrollments without Decreasing Admissions Standards or Sacrificing Quality of Programs

- Capitalize on the migration from existing General Education Requirements to the integrated Discovery Program to increase our exposure to undergraduates (through Inquiry and disciplinary courses).

- Continue integrating our teaching and research activities into the growing interdisciplinary academic programs (e.g. NRESS graduate program and ES undergraduate program).

- Implement recommendations for undergraduate recruitment as outlined in External Undergraduate Review and Licciardi's summary of GSA undergraduate recruitment workshop.

- Continue to revise undergraduate geosciences curriculum taking into account recommendations from recent External Review.

- Develop new strategies for increasing the number of graduate applications.

- Take advantage of recent CEPS incentive programs (e.g. graduate tuition return program) that encourage growth and excellence in graduate programs.

- Reassess Honors in Major program in light of changes at the University level and explore ways of entraining more undergraduates into this program.

Improve Coordination and Integration with Research Centers

- Continue to capitalize on the expertise of research faculty to 1) offer core courses in the graduate curriculum; 2) recruit, support, and advise graduate students; and 3) provide more opportunities for undergraduate research. This is ever more important given recent personnel turnover and administrative reorganization in several Research Centers.

- Continue to coordinate initiatives with Centers to leverage state-of-the-art facilities that reside in the Centers with teaching and research opportunities in the Department. For example, work closely with CSRC and CCRC to enhance teaching and research opportunities in the Department with the new geochemistry facilities (isotope ratio and inductively coupled plasma mass spectrometers).

- Continue to explore creative partnerships with Research Centers during new hiring initiatives. For example, work with the Water Systems Analysis Group to better integrate hydrology programs in the Department and EOS.

- Hold annual meeting dedicated to Research Faculty to focus on those issues most important to them.

Improve Communication and Connection with Alumni and other Friends of the Department

- Cultivate more and better relationships with our alumni via better communication and coordination with the Foundation. The James Hall renovations should help catalyze this process.

- Establish an Advisory Board that includes both alumni and professionals (private, state, federal) in the region that will provide input on our academic programs and keep us apprised of opportunities in the private and/or government sectors.

- Institutionalize an annual newsletter for purposes of improving communication with alumni and encouraging fund raising.

Hiring Plan and Partnerships

- Move swiftly to readvertise and complete existing search in Surface Water Hydrology.

- Develop a strategic hiring plan that (1) takes into account voids left by retirements of Bothner and resignations of Griffin and Vorosmarty and (2) incorporates ongoing planning and organizational changes in Research Centers.

LOOKING FARTHER AHEAD

The current departmental strategic planning process began in 2005 with a 5 year time horizon. This document represents a mid-way update to that plan. In order to properly position the department for success over longer time scales, it is worthwhile to identify key opportunities and challenges that we anticipate the department will face over the next 5 year planning cycle (2010-2015).

By far the biggest change to the department over the next 5 years will be the upcoming renovation of James Hall. This project is scheduled to be completed by December of 2009 and will present the department with a transformative opportunity to improve our teaching and research programs at all levels and enhance our student recruitment efforts. Faculty in the department will need to work hard to optimize the use of this new facility to ensure students reap the full benefits of this large institutional investment.

The other major change in the department will be a demographic one. The last five years have been a period of significant faculty turnover, as a large cohort of senior faculty have retired and a new cohort of younger faculty have been hired. Although this process will likely continue for the next 1-2 years, the faculty turnover will almost certainly slow over the next ~5 years. The department must ensure that it is properly prepared to accommodate and encourage the growth of these young faculty members in a way that aligns with the mission of the department, college, and university.

The Earth sciences are constantly evolving, often in unpredictable ways. This means that scholarly programs like ours must also evolve to ensure that students are prepared to make significant contributions when they graduate. As the Earth sciences evolve in the coming years, our Department needs to capitalize on its breadth and flexibility to respond to these changes in such a way that benefits our students and society.

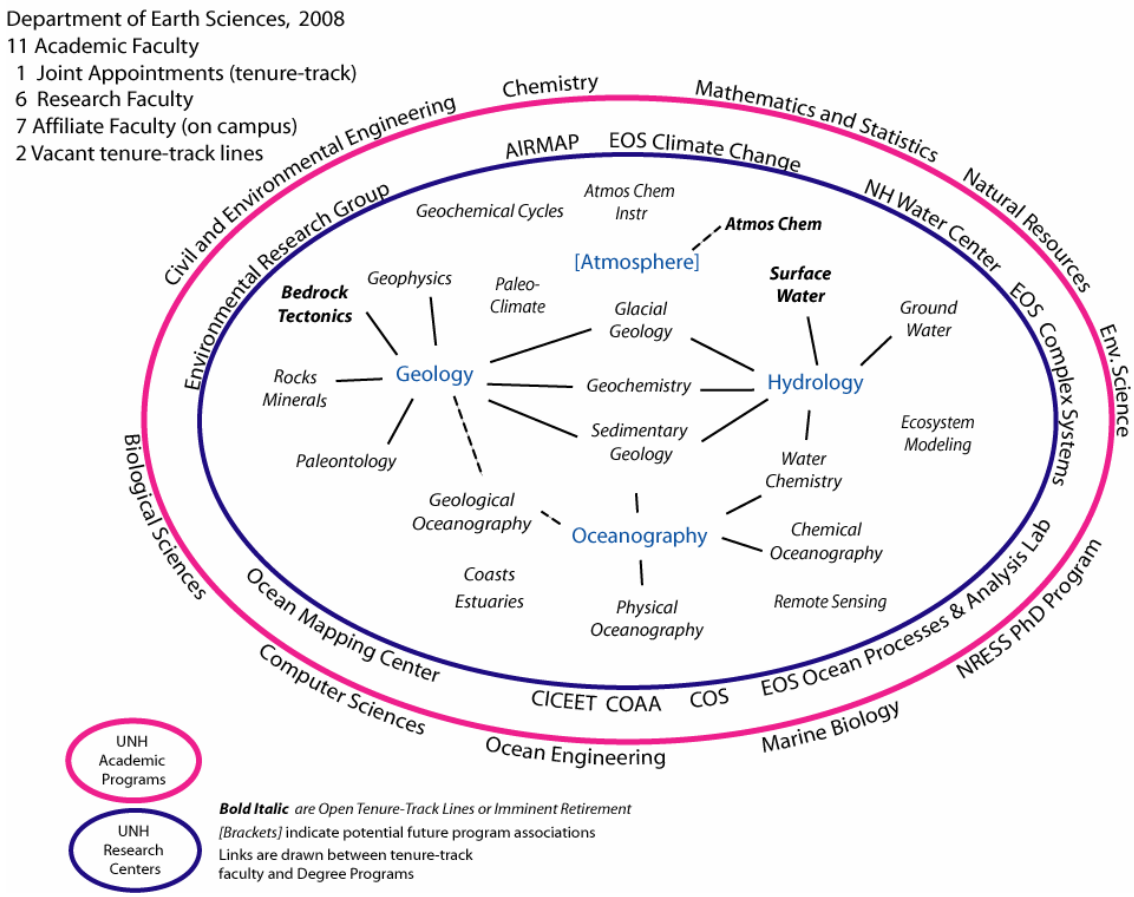

Figure 1. Schematic representation of the departmental faculty composition and program associations.